NAVSEA Automatic Identification and Data Capture (AIDC) Project

Program Overview

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AIDC Project

SEA 04L514

- AIDC Background
- NAVSEA AIDC Project History
- AIDC Initiatives
- Unique Identification (UID)
- Radio Frequency Identification (RFID)
- ROMIS-MMS
- Summary

" AIT (AIDC) is a suite of technologies that enable the automatic capture of source data, thereby enhancing the ability to identify, track, document and control deploying and redeploying forces, equipment, personnel and sustainment cargo. "

DoD Logistics AIT CONOPS – November 1997

AIT devices can automatically <u>identify</u>, <u>locate/track</u>, and <u>monitor</u> supplies and equipment

The Navy vision, as stated in the Navy Logistics AIT Implementation Plan (SEP 2000) is:

Navy AIT will provide the proper mix of technologies that allows users to efficiently and effectively capture, aggregate, and transfer data and information, and share the data among AISs by using the optimum technology for a particular application. AIT will facilitate data collection and flow to all AISs to better achieve asset visibility with minimal personnel intervention, both afloat and ashore. The Navy vision for AIT is applicable throughout the Navy, though the initial emphasis is on the supply and

However, we are now in a new phase of AIT/AIDC integration from

and to and in our Supply Chain and into our ships

The Goal of AIDC

Benefits

AIT improves Naval logistics and enhances war fighting capability by:

– Improving source data capture

– Speeding data processing and transmission

– Improving data accuracy

– Facilitating decision making

– Supporting material accountability

– Contributing to total asset visibility

– Providing portable data file capability

AIDC: Where and How

AIDC = Data Accuracy + Timeliness + Efficiency

Supply Chain Logistics Functional areas that AIDC supports:

- Configuration Management (CM)
- Validations
- Damage Control/Communications
- Financial
- Food Service
- Hazardous Material (HAZMAT)
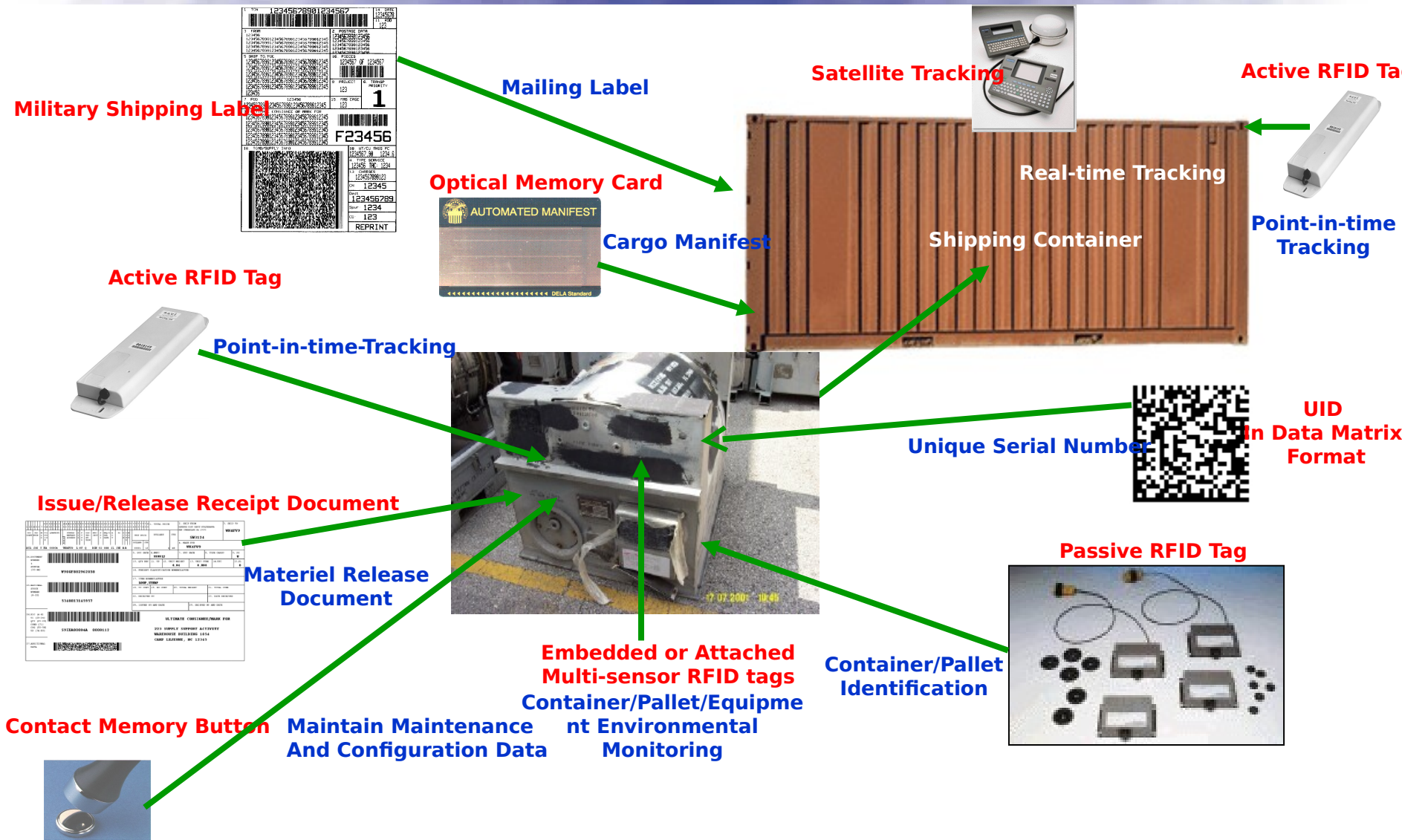
- Ordnance
- Personnel
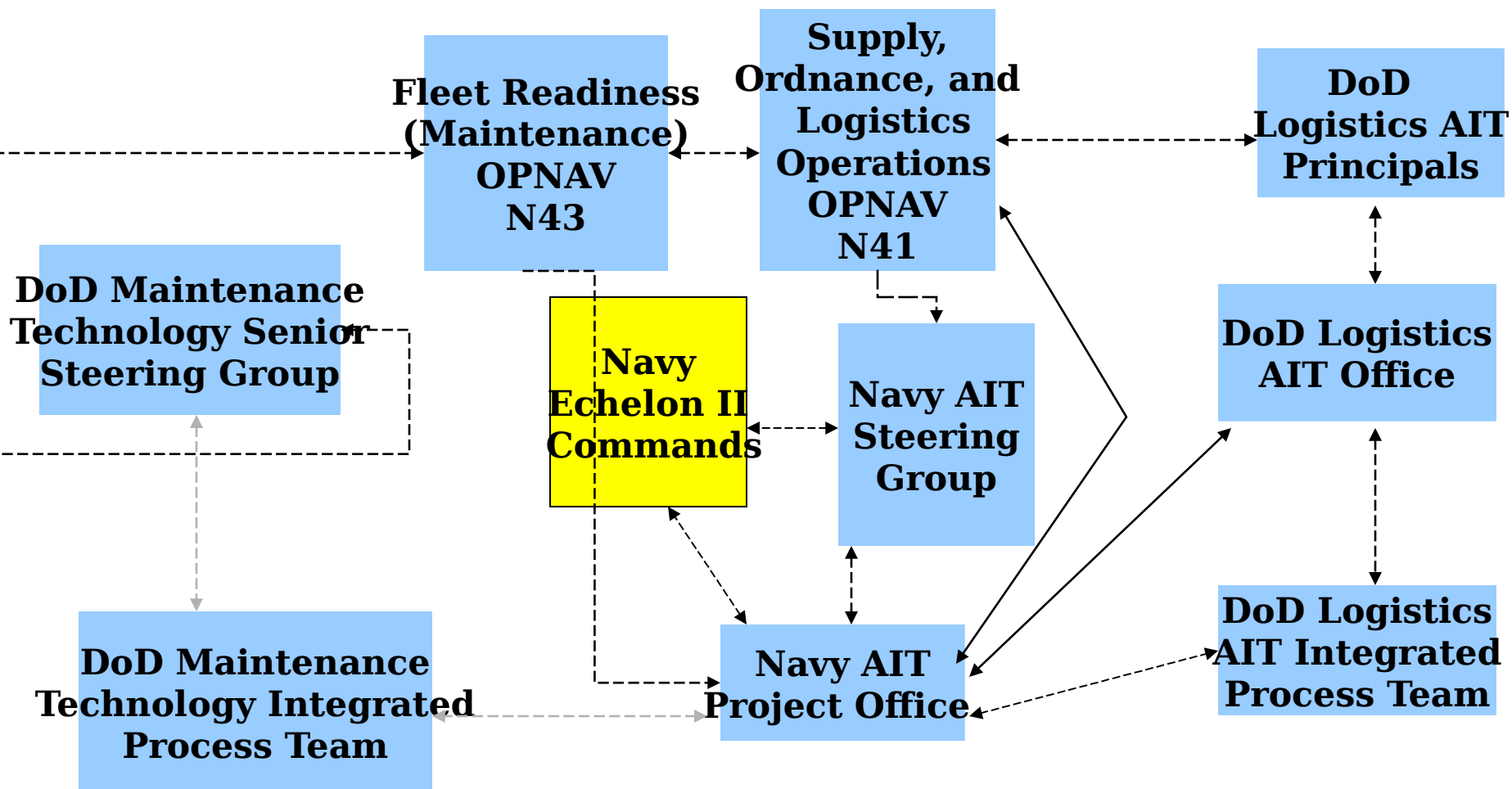- Safety
- Security
- Ship Service
- Supply Management
- Transportation

The Challenge
Integrating AIDC into our business processes

NAVSEA — NAVAL SEA SYSTEMS COMMAND

Military Shipping Label

Mailing Label

Satellite Tracking

Active RFID Tag

Optical Memory Card

AUTOMATED MANIFEST — DELA Standard

Real-time Tracking

Cargo Manifest

Shipping Container

Point-in-time Tracking

Active RFID Tag

Point-in-time-Tracking

Issue/Release Receipt Document

Unique Serial Number

UID In Data Matrix Format

Materiel Release Document

Passive RFID Tag

Embedded or Attached Multi-sensor RFID tags

Container/Pallet Identification

Contact Memory Button

Maintain Maintenance And Configuration Data

Container/Pallet/Equipment Environmental Monitoring

DoD AIT/AIDC Organization

- 1980 to Present
  - NAVSEA Technical Centers have routinely supported Navy AIT initiatives on a fee for service basis.
  - No central Headquarters coordination.
- FY01
  - SEA 04L5 recognized need for more central management of AIT/AIDC and established AIDC Project responsibilities.
  - Assumed voting member role on the Navy AIT Steering Group.
- FY02
  - NAVSEA 04L5 establish NAVSEA AIDC Steering Group to indoctrinate membership in AIDC policies and technical benefits.
  - Core team established to expedite the development of a NAVSEA AIDC corporate enterprise strategy.
- FY03
  - Drafting NAVSEA AIDC policy guidance
  - Established AIDC page to NAVSEA Configuration Management web site
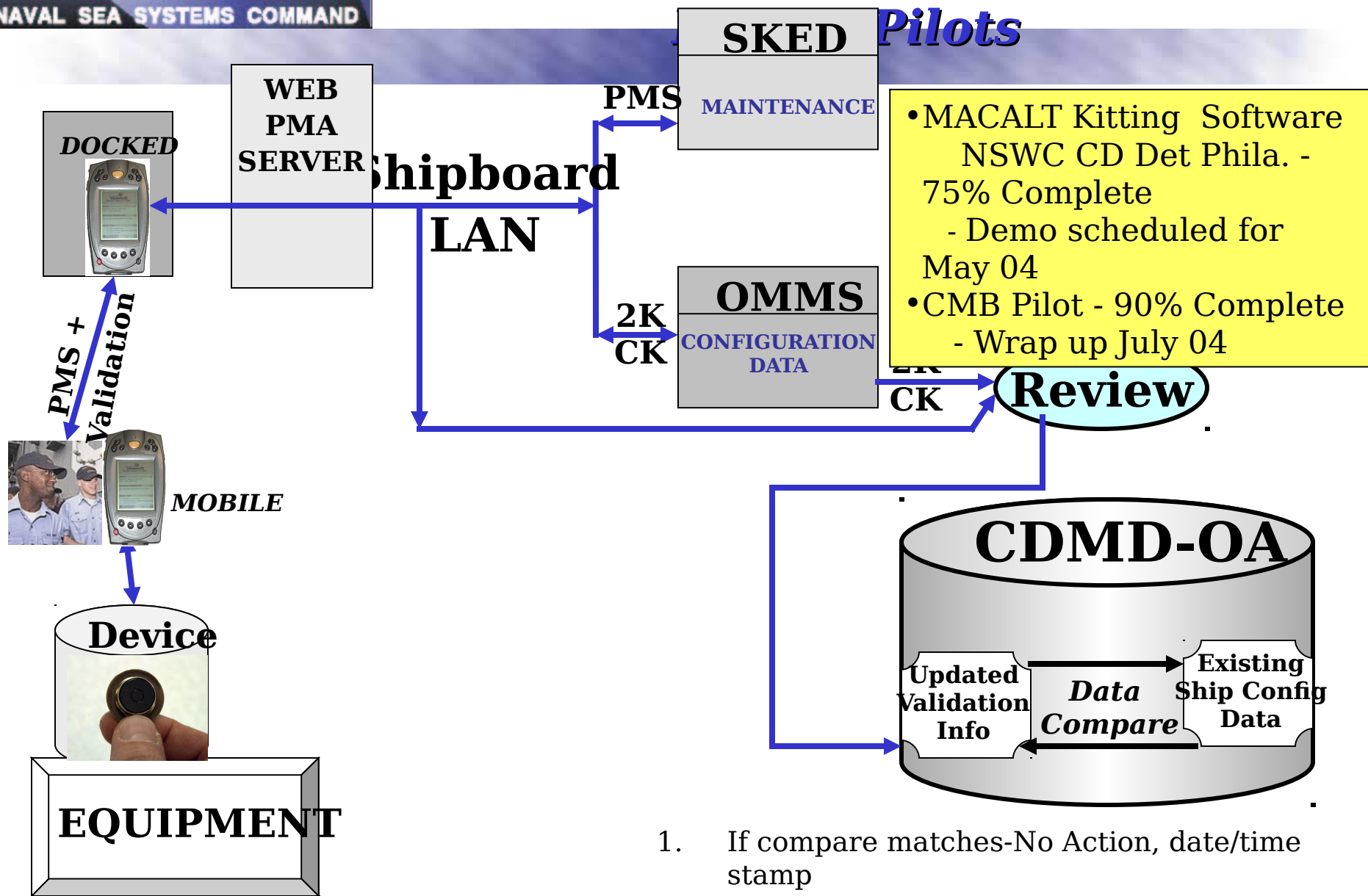 - Commenced conducting coordinated pilot AIDC projects

- AIDC Steering Group (and Core Group)
  - Unique Identifier (UID), Radio Frequency Identification (RFID) and Electronic Product Code (EPC) Indoctrination
- DDX
- CVN (X) and NAVSUP Summits
- LPD – 17 Project meetings
- T-AKE Project (Ship's Warehouse Mgt. Systems)
- LHA Design Team meetings
- Technical Center AIDC projects meetings
  - (e.g., NSWC IH, Port Hueneme, Carderock, and Crane)

- **Underway:**
  - Configuration Management - Serial Number Tracking
    - MACHALT Kitting Pilot
    - Validation Tool / Contact Memory Button Pilot– Northrop Grumman Ships Systems
  - Electronic Portable Maintenance Assistant (ePMA) and Validation Reporting
  - Smart Stores
- **FY 04 Planned:**
  - Material Tracking for Training Activities
  - Naval Shipyard Material Tracking / Maintenance Depots

NAVSEA — NAVAL SEA SYSTEMS COMMAND

DOCKED

WEB PMA SERVER

Shipboard LAN

SKED
MAINTENANCE

PMS

2K CK

OMMS
CONFIGURATION DATA

- MACALT Kitting Software NSWC CD Det Phila. - 75% Complete
  - Demo scheduled for May 04
- CMB Pilot - 90% Complete
  - Wrap up July 04

PMS + Validation

MOBILE

Device

EQUIPMENT

Review

2K CK

CDMD-OA

| Updated Validation Info | *Data Compare* | Existing Ship Config Data |

1. If compare matches-No Action, date/time stamp
2. If compare does not match, create workfile-

Electronic Maintenance Assistant (ePMA)

Pocket PMA

PMS e-MRCs
e- Work Candidates & CSMP
e-CKs
e- TFBRs
PocketTRODs
Zone Inspections
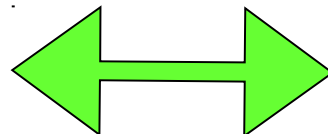TLMS (Future)
ALRE (Future)
Paint Inspections
(Future)

Wireless
Or Cradle
Connection

- Data Synchronization with CDMS-OA Complete
- Capture of CM Validation during Maintenance Action Prototype - 90% Complete

RAD

SCLSIS Databases

ePMA Server

(With FIPS 140-1 for wireless)

ISNS LAN

SKED & OMMS

ERP (Future)

Smart Stores Project Concept

NAVSEA — NAVAL SEA SYSTEMS COMMAND

AIT
Wireless LAN
RF Data Collection
RF Identification
Smart Shelves
Smart Sensors

Vehicle Tag   Personnel Tag   Asset Tag

- Multi-year, multi-phased pilots to demonstrate the feasibility of AIDC integration on future ships – FY 04 Funding Pending

Machinery Control
Vertical Conveyance
Horizontal Conveyance
Autonomous Vehicles
Automated Storage/
Retrieval System
Smart Sensors

Intra-Ship Stores Handling
and
Inventory Tracking System

AIS
R-Supply,
NALCOMIS,
SUADPS,
IBS, ERP,
etc…

NTCSS

Business Processes
Food Service Management,
UNRep/VertRep,
Inventory, Receipt,
Stow, Issues,
Etc.

Automated Inventory
Automated Supply Processes
Reduced Crew Workload
Improved Asset Visibility
Decreased Logistic Support Cost
Reduced Total Ownership Cost
Comprehensive Integrated Solution
Cross Platform Solution (e.g. CVN, Amphib, MPFF, T-AKE)

Smart Stores
Future Business Process

AIDC Information Flow

Automatic Identification Data Capture
- CMB
- Barcode
- RFID
- WLAN
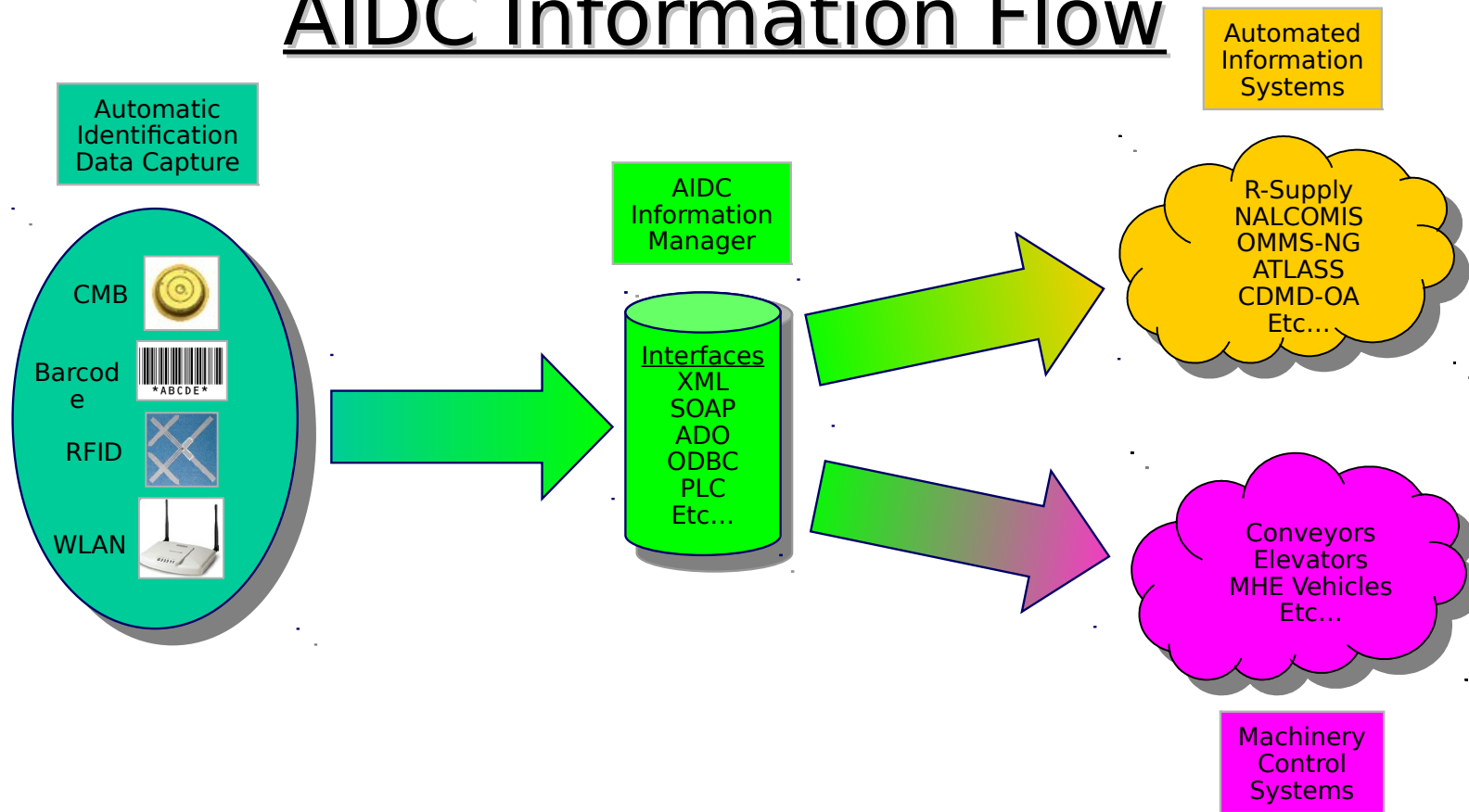
AIDC Information Manager

Interfaces
XML
SOAP
ADO
ODBC
PLC
Etc...

Automated Information Systems

R-Supply
NALCOMIS
OMMS-NG
ATLASS
CDMD-OA
Etc...

Machinery Control Systems

Conveyors
Elevators
MHE Vehicles
Etc...

Benefits
- Asset Visibility
- Inventory Automation
- Common User Interface
- MHE Interface
- AIDC Interface
- AIS Interface
- Open Architecture
- Standards Based
- Scalable
- Real-Time

Smart Stores
Total Asset Visibility

DoD Vision for Item Marking

- To create a policy establishing a strategic imperative for uniquely identifying tangible items relying to the maximum extent practical on international standards and commercial item markings and while not imposing unique government data requirements.

- Uniquely Identification (UID) of tangible items will facilitate item tracking in DoD business systems and provide reliable and accurate data for management, financial, accountability and asset management purposes.

Unique IDentification (UID)

UID is . . .

. . . the set of data for tangible assets that is globally unique and unambiguous, ensures data integrity and data quality throughout life, and supports multi-faceted business applications and

EID	370521	
Original Part Number	1234	
Serial Number	786950	

- UID Registry up and running
- Interim DFAR in effect, Final DFARS to be completed in July 2004
- UID will be tied to the financial record
- AIS's will need to be updated
- Migration from MIL's to DLMS linked to UID

UID Continued

- Need to have a plan in place to implement requirements for UID
  - Contract language
  - FY 04 New Procurements of $5000 or more
  - FY 05 New Procurements
    - Serially managed
    - Mission essential
    - Controlled item
    - Repairable
    - Where permanent identification is required
    - PM mandates

- By no means simple
- Phased approach
- Funding to implement? NO
- Planning is imperative
- Presently, No Waivers
- FMS will be included
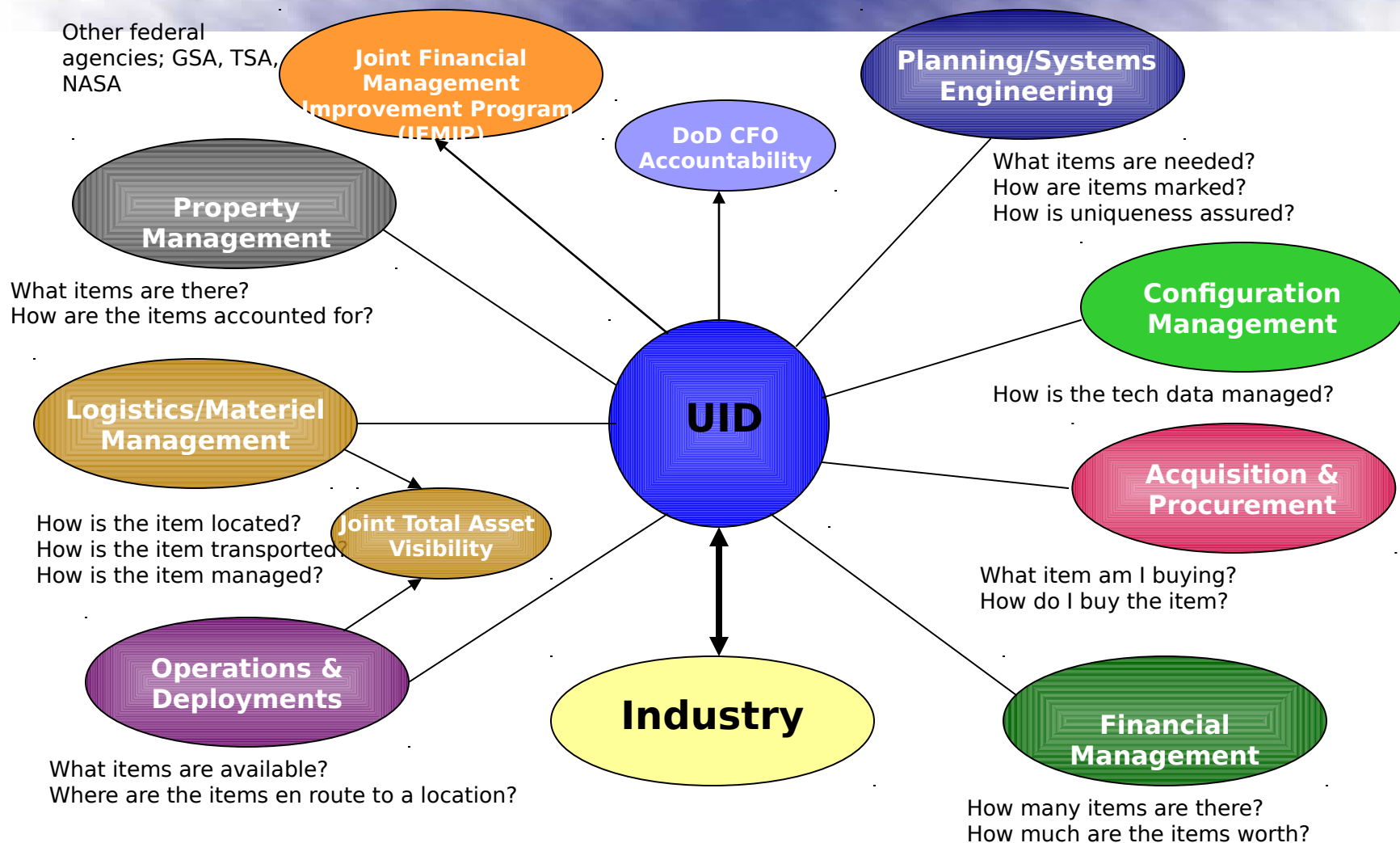- Parts marking plan must be developed

- Communication with OSD and Navy AIT Office
- PM's need to develop a migration plan
- Affects the DoD Supply Chain
- Just the beginning

Defining the Scope of UID

| A UID Is	A UID Is Not
✓ A Data Element ✓ A Unique Identifier for an Item ✓ Globally Unique ✓ Unambiguous ✓ Permanent ✓ Created by Concatenating Specific Data Elements ✓ The enabler for business intelligence	✓ A Device for Communicating Data, such as Radio Frequency Identification (RFID) Tags, Contact Memory Buttons, Linear Bar Codes, or 2-D Data Matrices ✓ A Replacement for the National Stock Number ✓ Intelligent Data that Yields Information

UID Interfaces

NAVSEA
NAVAL SEA SYSTEMS COMMAND

Other federal agencies; GSA, TSA, NASA

Joint Financial Management Improvement Program (JFMIP)

DoD CFO Accountability

Planning/Systems Engineering

What items are needed?
How are items marked?
How is uniqueness assured?

Property Management

What items are there?
How are the items accounted for?

Configuration Management

How is the tech data managed?

Logistics/Materiel Management

UID

Acquisition & Procurement

How is the item located?
How is the item transported?
How is the item managed?

Joint Total Asset Visibility

What item am I buying?
How do I buy the item?

Operations & Deployments

Industry

Financial Management

What items are available?
Where are the items en route to a location?

How many items are there?
How much are the items worth?

- RFID Policy will be released by N41
- We will need the ability to read RFID tags especially for receiving material
- Decisions still being made for RFID usage, presently focus is on Transportation
- EPC will be used as Unique Identification for RFID tags
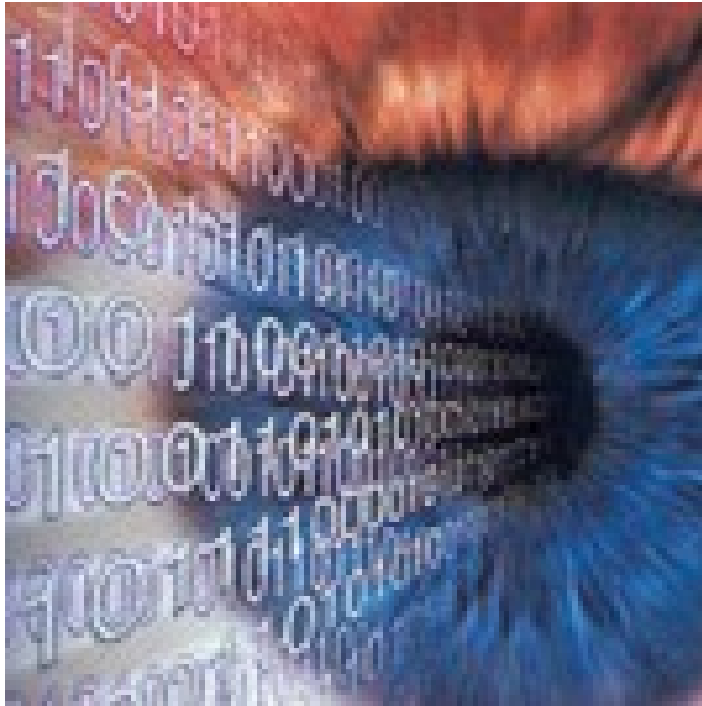
www.epcglobalinc.org

… will make organizations more effective by enabling immediate, automatic, and accurate item identification and information sharing through a global, standardized network using <u>passive RFID tags</u> each with this

- Material Management will expand to include the UID in the future
- Requisitions for GFE will be done in DLMS format
- Status will be affected
- Receipt of Material???
  - Shipbuilder?
  - Government?

- Fabricating, Material Tracking
- Repair Items
- Configuration Management
- What about material ordered before the UID Policy?
- Identify Trigger Events
- Who will do Parts Marking?
- What else will be affected?

Information Slide

- DAU has UID overview to help you understand the vision   **www.dau.mil**
- OSD website for policy and guidance www.**acq.osd.mil/uid/**
- DLMS – **www.**dla.mil
- NAVSEA – **www.**cm.navsea.navy.mil (look for the AIDC tab at the top)

Summary

The NAVSEA AIDC Steering Group is aggressively pursuing cost-effective applications of AIDC, wherever it can be beneficially integrated into our logistics business processes and our engineering quality assurance and equipment monitoring functions.

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AIDC Program

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